NANOTECHNOLOGY: IMPLICATIONS FOR THE INSURANCE SECTOR

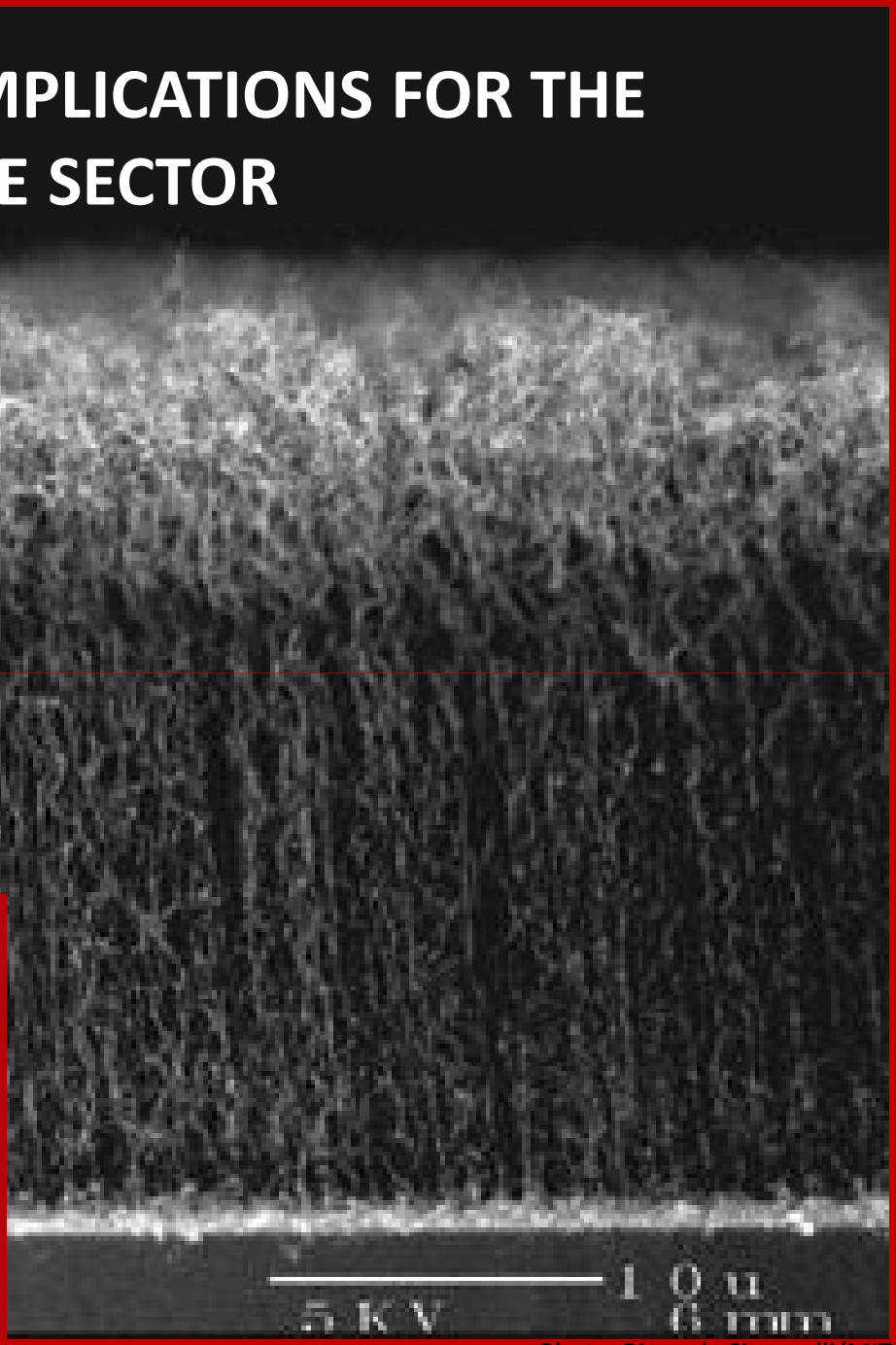

Photo: Riccardo Signorelli/MIT

Dr Lijana Baublyte
Researcher – SANOWORK Project
University of Limerick

SEVENTH FRAMEWORK PROGRAMME

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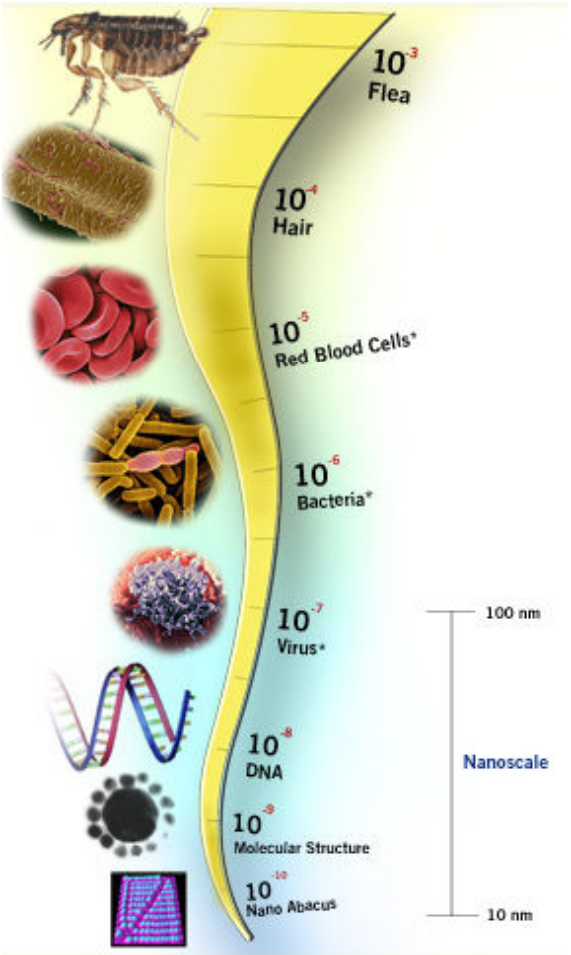
Nanotechnology



*Images © Dennis Kunkel Microscopy, Inc.

- Nanotechnology can be described as manipulation of individual nanoparticles at the atomic-level.
- Nanoscience works with dimensions of less than 100nm.
- A nanometre is 10^{-9} (one billionth of a meter).

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Nanoproducts

Health and fitness	Wound dressing; pregnancy test; toothpaste; golf club; tennis racket; skis; antibacterial socks; waste and stain resistant pants; cosmetics…
Electronics and computers	Computer displays; games; computer hardware…
Home and garden	Paint; antimicrobial pillows; stain resistant cushions …
Food and beverage	Non-stick coatings for pans; antimicrobial refrigerator; canola oil…
Other	Coatings; lubricants…

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Source: *Woodrow Wilson Centre Consumer Products Inventory*

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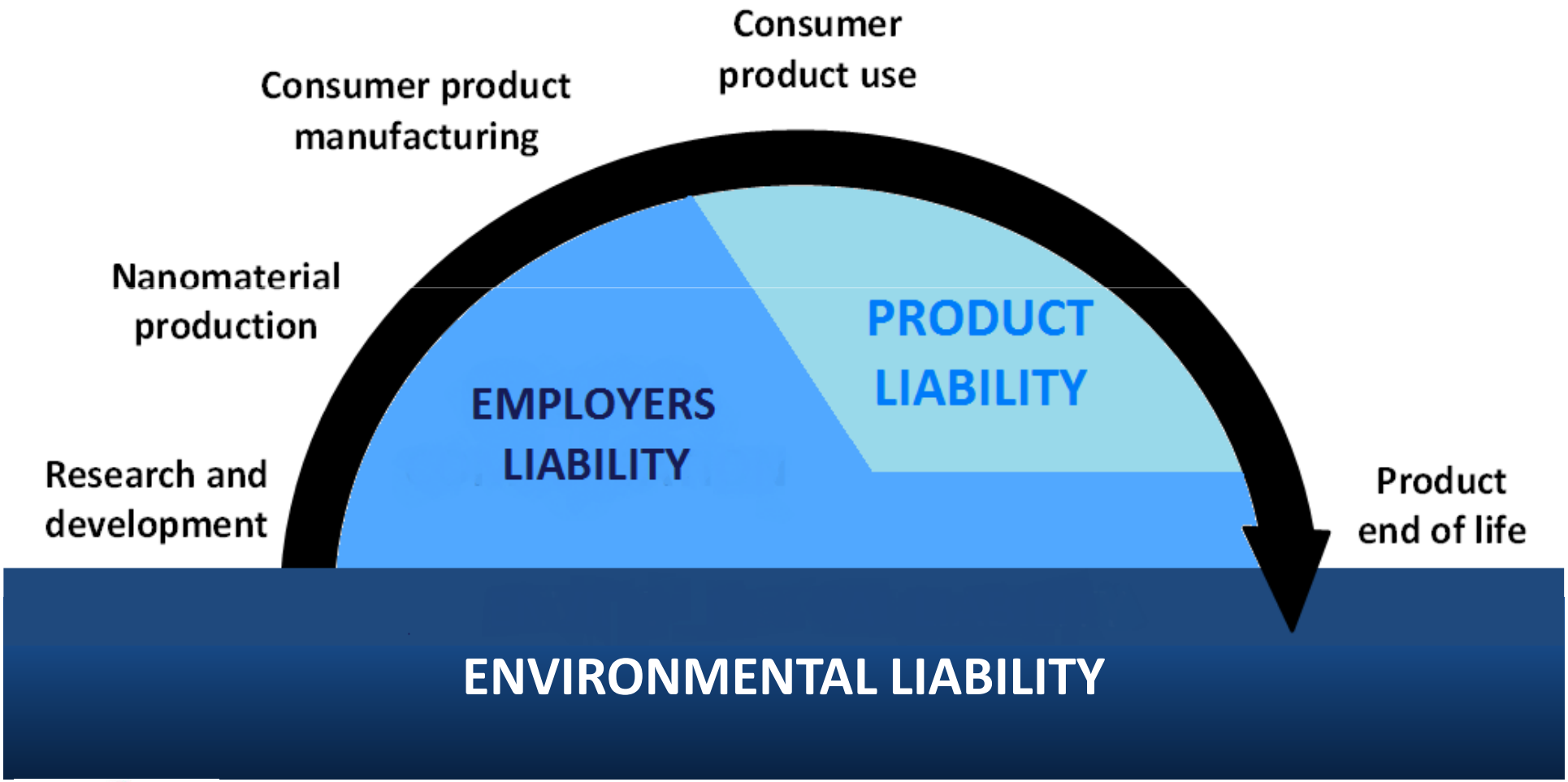
Nano Life Cycle Analysis



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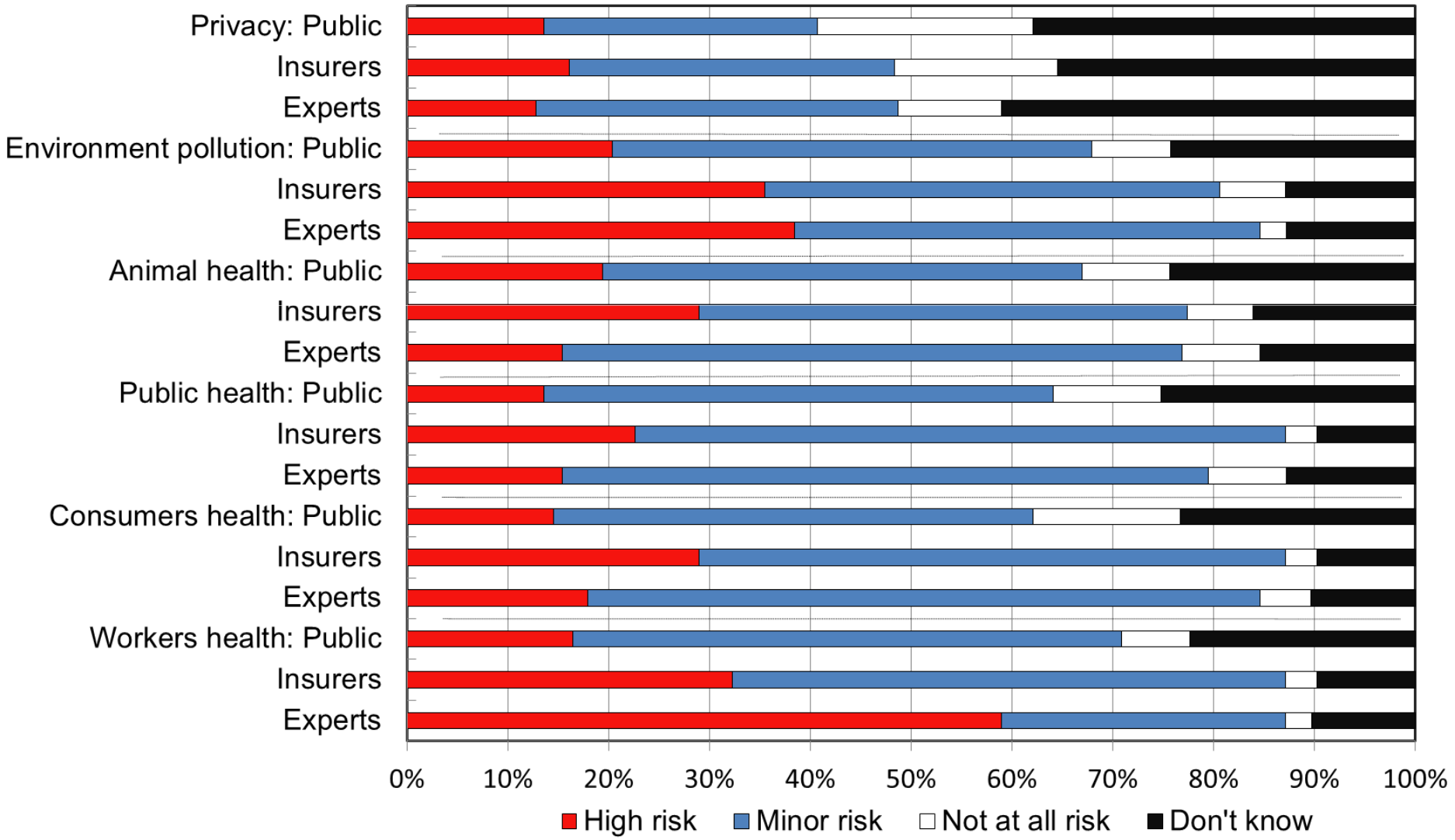
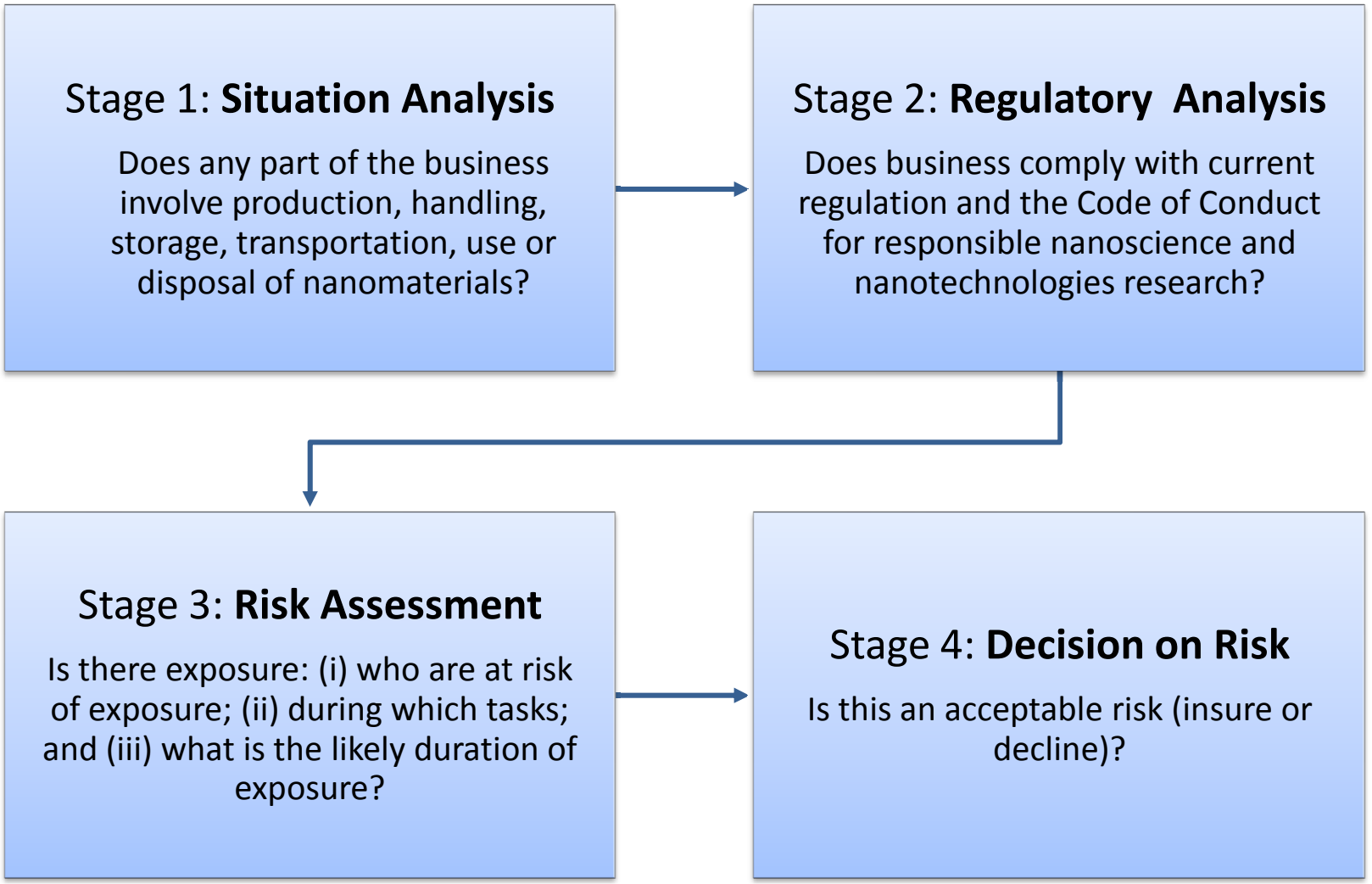
Nanotechnology Risk Perception



Risk Screening Framework



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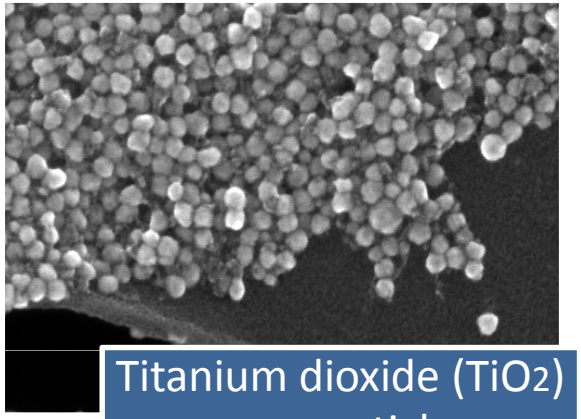
Control Banding Approach

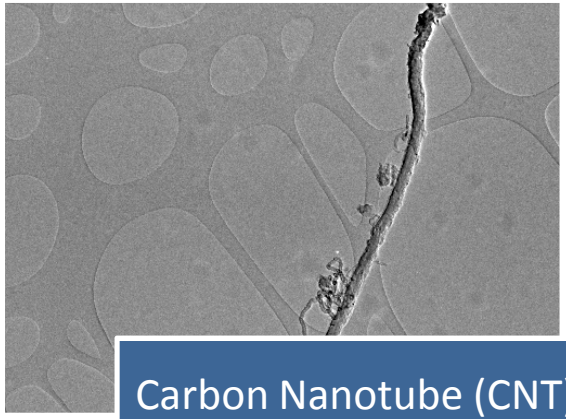
EXPOSURE LEVEL →	TOXICITY LEVEL → Extremely unlikely	Less likely	Likely	Probable	Toxic
Very High	**2**	**2**	**3**	**3**	**3**
High	**2**	**2**	**2**	**3**	**3**
Medium	**1**	**1**	**2**	**2**	**1**
Low	**1**	**1**	**1**	**2**	**3**
0	*No exposure means no risk in normal conditions. Regular employer's liability underwriting criteria applies.*				

RISK LEVEL	SITUATION	UNDERWRITING DECISION
1 (low)	Acceptable	Insurable
2 (moderate)	To be improved	Insurable only on a condition that extra precautionary measures are taken to manage workers' exposure to nanomaterials (e.g., require that certain tasks would be performed in the cleanroom in order to reduce the exposure level or propose chemical coating to reduce the toxicity level if possible).
3 (high)	Unacceptable	Uninsurable

Risk Assessment Challenges



Titanium dioxide (TiO_2) nanoparticles



Carbon Nanotube (CNT)

- **Difficult to quantify** (e.g., no claims data available)
- There are a number of **definitions** of nanoparticles and nanomaterials. Which one to use?
- A lack of **standardisation** of nanotechnology field
- **Regulation**

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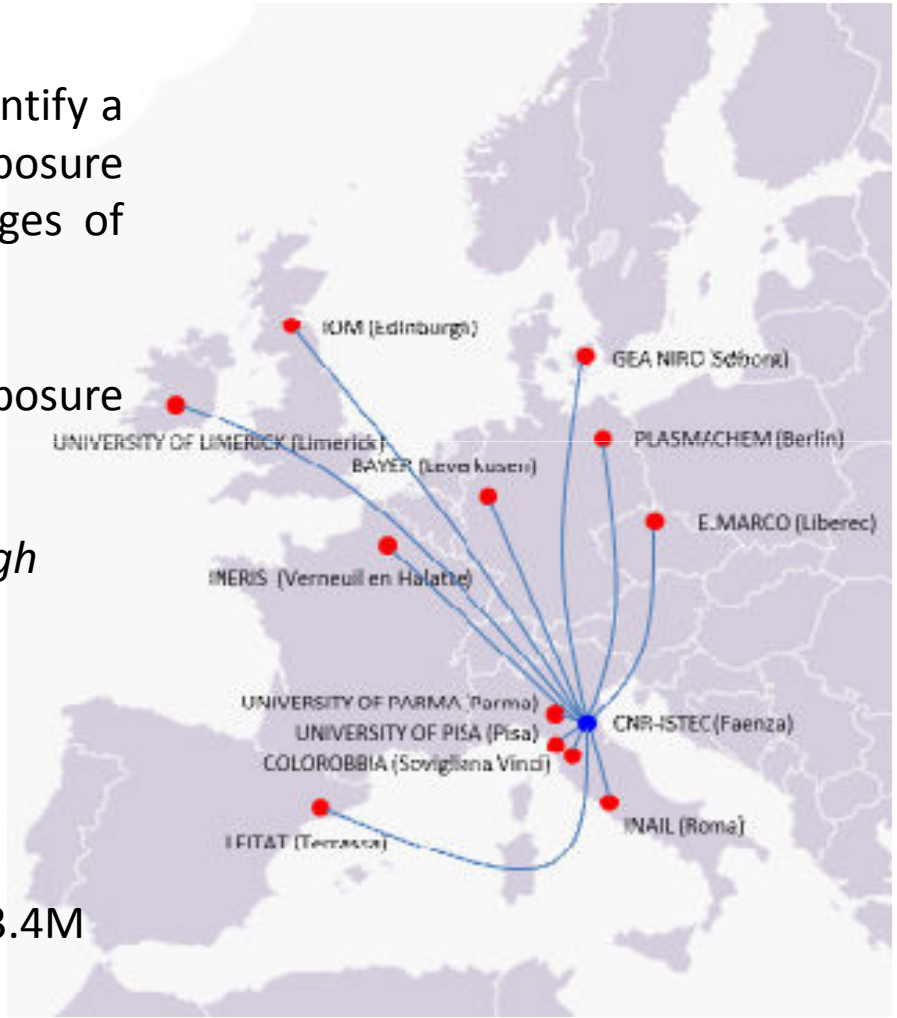
SANOWORK

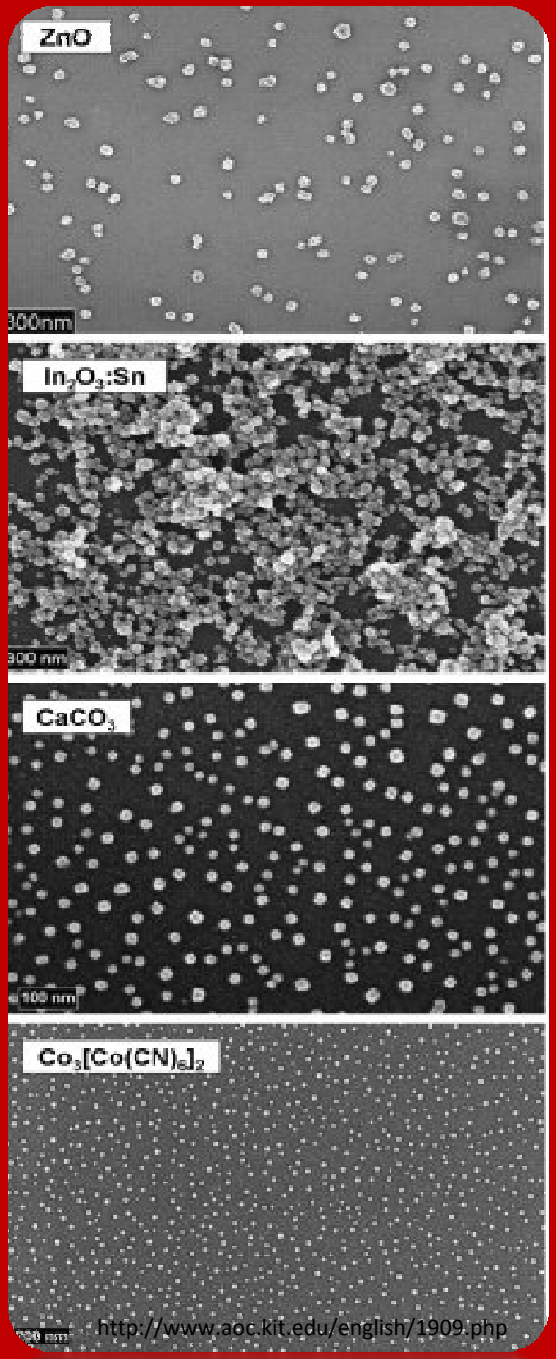
- The main goal of SANOWORK project is to identify a safe occupational exposure scenario by exposure assessment in real conditions and at all stages of nanomaterials production, use and disposal.

- It involves two aspects of nano worker exposure assessment and management:
  - **Risk control strategies** – *"prevention through design"; and*
  - **Risk transfer** – development of nano-risk underwriting framework.

- 13 Partners
- Total Budget: €4.8M; Total EC contribution: € 3.4M



This project is funded by the European Commission (EC) under the Seventh Framework Programme (FP7)



Thank You!

Acknowledgement

The research leading to this commentary has received funding from the European Community's Seventh Framework Programme FP7 under grant agreement n° 280716.

Disclaimer:

The views expressed in this commentary are those of the authors and do not necessarily represent those of the European Commission

Dr Lijana Baublyte

Lijana.baublyte@ul.ie

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